



IFWO

RAW SEQUENCE LISTING

DATE: 07/23/2004

PATENT APPLICATION: US/10/647,268

TIME: 16:47:20

Input Set : A:\Oosumi.ST25.txt

Output Set: N:\CRF4\07232004\J647268.raw

3 <110> APPLICANT: Oosumi et al., Teruko
 5 <120> TITLE OF INVENTION: Solanum Bulbocastanum Late Blight Resistance Gene and Use
 Thereof
 7 <130> FILE REFERENCE: 0155.02
 C--> 9 <140> CURRENT APPLICATION NUMBER: US/10/647,268
 C--> 9 <141> CURRENT FILING DATE: 2003-08-20
 9 <150> PRIOR APPLICATION NUMBER: 60/407,100
 10 <151> PRIOR FILING DATE: 2002-08-29
 12 <160> NUMBER OF SEQ ID NOS: 10
 14 <170> SOFTWARE: PatentIn version 3.2
 16 <210> SEQ ID NO: 1
 17 <211> LENGTH: 3193
 18 <212> TYPE: DNA
 19 <213> ORGANISM: Solanum bulbocastanum
 22 <220> FEATURE:
 23 <221> NAME/KEY: CDS
 24 <222> LOCATION: (52)..(3018)
 26 <400> SEQUENCE: 1
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 28 Met Ala
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 31 gaa gct ttc ctt caa gtt ctg tta gac aat ctg act tgt ttc atc caa 105
 32 Glu Ala Phe Leu Gln Val Leu Leu Asp Asn Leu Thr Cys Phe Ile Gln
 33 5 10 15
 35 ggg gaa ctt gga ttg att ctt ggt ttt aag gat gag ttc gaa aag ctt 153
 36 Gly Glu Leu Gly Leu Ile Leu Gly Phe Lys Asp Glu Phe Glu Lys Leu
 37 20 25 30
 39 caa agc acg ttt act aca atc caa gct gtg cta gaa gat gct cag aag 201
 40 Gln Ser Thr Phe Thr Thr Ile Gln Ala Val Leu Glu Asp Ala Gln Lys
 41 35 40 45 50
 43 aag caa ttg aag gac aag gca ata gaa aat tgg ttg cag aaa ctc aat 249
 44 Lys Gln Leu Lys Asp Lys Ala Ile Glu Asn Trp Leu Gln Lys Leu Asn
 45 55 60 65
 47 gct gct gca tat gag gct gat gac atc ttg gac gaa tgt aaa act gag 297
 48 Ala Ala Ala Tyr Glu Ala Asp Asp Ile Leu Asp Glu Cys Lys Thr Glu
 49 70 75 80
 51 gca cca att aga cag aag aag aac aaa tat ggg tgt tat cat cca aac 345
 52 Ala Pro Ile Arg Gln Lys Lys Asn Lys Tyr Gly Cys Tyr His Pro Asn
 53 85 90 95
 55 gtt atc act ttt cgt cac aag att ggg aaa agg atg aaa aag att atg 393
 56 Val Ile Thr Phe Arg His Lys Ile Gly Lys Arg Met Lys Lys Ile Met
 57 100 105 110
 59 gag aaa cta gat gta att gca gcg gaa cga att aag ttt cat ttg gat 441
 60 Glu Lys Leu Asp Val Ile Ala Ala Glu Arg Ile Lys Phe His Leu Asp

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65					135					140				145			
67	ttg	aat	gaa	cca	caa	gtt	tat	gga	aga	gac	aaa	gaa	aag	gac	gag	ata	537
68	Leu	Asn	Glu	Pro	Gln	Val	Tyr	Gly	Arg	Asp	Lys	Glu	Lys	Asp	Glu	Ile	
69				150					155					160			
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72	Val	Lys	Ile	Leu	Ile	Asn	Asn	Val	Ser	Asn	Ala	Gln	Thr	Leu	Pro	Val	
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76	Leu	Pro	Ile	Leu	Gly	Met	Gly	Gly	Leu	Gly	Lys	Thr	Thr	Leu	Ala	Gln	
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80	Met	Val	Phe	Asn	Asp	Gln	Arg	Val	Ile	Glu	His	Phe	His	Pro	Lys	Ile	
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83	tgg	att	tgt	gtc	tcg	gaa	gat	ttt	aat	gag	aag	agg	ttg	ata	aag	gaa	729
84	Trp	Ile	Cys	Val	Ser	Glu	Asp	Phe	Asn	Glu	Lys	Arg	Leu	Ile	Lys	Glu	
85				215					220					225			
87	att	gta	gaa	tct	att	gaa	gaa	aag	tca	ctt	ggg	ggc	atg	gac	ttg	gct	777
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91	cca	ctt	caa	aag	aag	ctt	cgg	gac	ttg	ctg	aat	gga	aaa	aaa	tat	ttg	825
92	Pro	Leu	Gln	Lys	Lys	Leu	Arg	Asp	Leu	Leu	Asn	Gly	Lys	Lys	Tyr	Leu	
93			245					250					255				
95	ctc	gtc	tta	gat	gat	gtt	tgg	aat	gaa	gat	caa	gat	aag	tgg	gct	aag	873
96	Leu	Val	Leu	Asp	Asp	Val	Trp	Asn	Glu	Asp	Gln	Asp	Lys	Trp	Ala	Lys	
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99	tta	aga	caa	gtc	ttg	aag	gtt	gga	gca	agt	ggc	gct	tct	gtt	cta	acc	921
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101	275				280				285					290			
103	act	act	cgt	ctt	gaa	aag	gtt	gga	tca	att	atg	gga	aca	ttg	caa	cca	969
104	Thr	Thr	Arg	Leu	Glu	Lys	Val	Gly	Ser	Ile	Met	Gly	Thr	Leu	Gln	Pro	
105				295					300					305			
107	tat	gaa	ttg	tca	aat	ttg	tct	caa	gaa	gat	tgt	tgg	ttg	ttg	ttc	atg	1017
108	Tyr	Glu	Leu	Ser	Asn	Leu	Ser	Gln	Glu	Asp	Cys	Trp	Leu	Leu	Phe	Met	
109				310													

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132	Leu	Arg	Gln	Cys	Phe	Thr	Tyr	Cys	Ala	Val	Phe	Pro	Lys	Asp	Thr	Glu	
133			405					410					415				
135	atg	gaa	aag	gga	aat	cta	atc	tct	ctc	tgg	atg	gca	cat	ggg	ttt	att	1353
136	Met	Glu	Lys	Gly	Asn	Leu	Ile	Ser	Leu	Trp	Met	Ala	His	Gly	Phe	Ile	
137		420					425					430					
139	tta	tcg	aaa	gga	aac	ttg	gag	cta	gag	aat	gta	ggg	aat	gaa	gta	tgg	1401
140	Leu	Ser	Lys	Gly	Asn	Leu	Glu	Leu	Glu	Asn	Val	Gly	Asn	Glu	Val	Trp	
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143	aat	gaa	tta	tac	ttg	agg	tct	ttc	ttc	caa	gag	att	gaa	gtt	aaa	tct	1449
144	Asn	Glu	Leu	Tyr	Leu	Arg	Ser	Phe	Phe	Gln	Glu	Ile	Glu	Val	Lys	Ser	
145				455					460					465			
147	ggg	caa	act	tat	ttc	aag	atg	cat	gat	ctc	att	cat	gat	ctg	gca	aca	1497
148	Gly	Gln	Thr	Tyr	Phe	Lys	Met	His	Asp	Leu	Ile	His	Asp	Leu	Ala	Thr	
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152	Ser	Leu	Phe	Ser	Ala	Ser	Thr	Ser	Ser	Ser	Asn	Ile	Arg	Glu	Ile	Ile	
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155	gta	gaa	aat	tac	ata	cat	atg	atg	tcc	att	ggg	ttc	act	aaa	gtg	gta	1593
156	Val	Glu	Asn	Tyr	Ile	His	Met	Met	Ser	Ile	Gly	Phe	Thr	Lys	Val	Val	
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161	515					520					525					530	
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164	Leu	Asn	Leu	Ser	Asp	Ile	Lys	Leu	Lys	Gln	Leu	Pro	Ser	Ser	Ile	Gly	
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171	cgt	agt	ctt	cca	aac	cag	tta	tgc	aag	ctt	caa	aat	ctg	cag	act	ctt	1785
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175	gat	cta	cat	ggc	tgt	cat	tca	ctt	tgt	tgt	ttg	cca	aaa	gaa	aca	agc	1833
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180	Lys	Leu	Gly	Ser	Leu	Arg	Asn	Leu	Leu	Leu	Asp	Gly	Cys	Tyr	Gly	Leu	
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184	Thr	Cys	Met	Pro	Pro	Arg	Ile	Gly	Ser	Leu	Thr	Cys	Leu	Lys	Thr	Leu	
185				615					620					625			
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188	Ser	Arg	Phe	Val	Val	Gly	Ile	Gln	Lys	Lys	Ser	Cys	Gln	Leu	Gly	Glu	
189			630					635						640			
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196	Arg	Val	Lys	Asn	Asp	Met	Asp	Ala	Lys	Glu	Ala	Asn	Leu	Ser	Ala	Lys	
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203	cgt	ata	tat	gaa	tca	gaa	aaa	gtt	gaa	gtg	ctt	gaa	gct	ctc	aaa	cca	2169
204	Arg	Ile	Tyr	Glu	Ser	Glu	Lys	Val	Glu	Val	Leu	Glu	Ala	Leu	Lys	Pro	
205						695					700					705	
207	cac	tcc	aat	ctg	act	tgt	tta	aca	atc	agg	ggc	ttc	aga	gga	atc	cgt	2217
208	His	Ser	Asn	Leu	Thr	Cys	Leu	Thr	Ile	Arg	Gly	Phe	Arg	Gly	Ile	Arg	
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228	Arg	Lys	Leu	Asn	Ile	Arg	Glu	Phe	Gly	Asn	Leu	Lys	Gly	Leu	Leu	Lys	
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235	tgt	tgc	cct	atg	ttt	gtt	att	cca	acc	ctt	tct	tct	gtc	aag	aaa	ttg	2553
236	Cys	Cys	Pro	Met	Phe	Val	Ile	Pro	Thr	Leu	Ser	Ser	Val	Lys	Lys	Leu	
237						820					825					830	
239	gta	gtt	agt	ggg	gac	aag	tca	gat	gca	ata	ggt	ttc	agt	tcc	ata	tct	2601
240	Val	Val	Ser	Gly	Asp	Lys	Ser	Asp	Ala	Ile	Gly	Phe	Ser	Ser	Ile	Ser	
241	835					840					845					850	
243	aat	ctc	atg	gct	ctt	act	tcc	ctc	caa	att	cgc	tat	aac	aaa	gaa	gat	2649
244	Asn	Leu	Met	Ala	Leu	Thr	Ser	Leu	Gln	Ile	Arg	Tyr	Asn	Lys	Glu	Asp	
245						855					860					865	
247	gct	tca	ctc	cca	gaa	gag	atg	ttc	aaa	agc	ctt	gca	aat	ctc	aaa	tac	2697
248	Ala	Ser	Leu	Pro	Glu	Glu	Met	Phe	Lys	Ser	Leu	Ala	Asn	Leu	Lys	Tyr	
249						870					875					880	
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252	Leu	Asn	Ile	Ser	Phe	Tyr	Phe	Asn	Leu	Lys	Glu	Leu	Pro	Thr	Ser	Leu	
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261 915                      920                      925                      930
263 cag tta tcc ata aca tac tgt gaa atg cta caa tgt tta ccg gag gga      2889
264 Gln Leu Ser Ile Thr Tyr Cys Glu Met Leu Gln Cys Leu Pro Glu Gly
265                      935                      940                      945
267 ttg cag cac cta aca gcc ctc aca aat tta tca gtt gag ttt tgt cca      2937
268 Leu Gln His Leu Thr Ala Leu Thr Asn Leu Ser Val Glu Phe Cys Pro
269                      950                      955                      960
271 aca ctg gcc aag cgg tgt gag aag gga ata gga gaa gac tgg tac aaa      2985
272 Thr Leu Ala Lys Arg Cys Glu Lys Gly Ile Gly Glu Asp Trp Tyr Lys
273                      965                      970                      975
275 att gct cac att cct cgt gtg ttt att tat tag tattcccaat tagatgtaat      3038
276 Ile Ala His Ile Pro Arg Val Phe Ile Tyr
277      980                      985
279 tttctgattt tcttttggaa acaaatcaac tatttgtaag atctatttgt attatacttg      3098
281 atttttcttg ggtctgtaac aataaatatt tgaaattttt catattaaga ttcagaatta      3158
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286 <210> SEQ ID NO: 2
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288 <212> TYPE: PRT
289 <213> ORGANISM: Solanum bulbocastanum
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301 Lys Leu Gln Ser Thr Phe Thr Thr Ile Gln Ala Val Leu Glu Asp Ala
302                      35                      40                      45
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306                      50                      55                      60
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313 Thr Glu Ala Pro Ile Arg Gln Lys Lys Asn Lys Tyr Gly Cys Tyr His
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322                      115                      120                      125
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326                      130                      135                      140
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333 Glu Ile Val Lys Ile Leu Ile Asn Asn Val Ser Asn Ala Gln Thr Leu
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VERIFICATION SUMMARY

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L:9 M:270 C: Current Application Number differs, Replaced Current Application No

L:9 M:271 C: Current Filing Date differs, Replaced Current Filing Date

L:614 M:361 W: Invalid Split Codon, Sequence data for SEQ ID#: 3

STATISTICS SUMMARY

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Application Serial Number: US/10/647,268

Alpha or Numeric or Xml: Numeric

Application Class:

Application File Date: 08-20-2003

Art Unit: IFWO

Software Application: PatentIN3.2

Total Number of Sequences: 10

Total Nucleotides: 18385

Total Amino Acids: 4967

Number of Errors: 0

Number of Warnings: 1

Number of Corrections: 2

MESSAGE SUMMARY

270 C: 1 (Current Application Number differs)

271 C: 1 (Current Filing Date differs)

361 W: 1 (Invalid Split Codon)